II. STATUS OF CLAIMS

Claims 1-17, 19-27, 29-38, 40-42 and 44-56 are pending in the application, Claims 1, 6, 9 and 11 being in independent form. Claims 1-17, 19-27, 29-38, 40-42 and 44-56 stand rejected. No claims have been added. Claims 18, 28, 39 and 43 have been previously canceled. Claims [AMENDED CLAIMS] have been amended. No new matter has been added by these amendments.

A. Summary of the Patent Office's Rejections

The Patent Office has made rejections of certain Claims in an Office Action dated September 14, 2011. Applicant notes that the Patent Office has not continued its prior rejection of Claims 6-9, 20-27, 29-38, 40-42, and 49-51, and 54-55 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,868,669 (filed January 9, 1997) (the "'669 Patent") and that rejection is therefore withdrawn.

B. Rejection under 35 U.S.C. § 101

Claims 1-56 were rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

C. Rejection under 35 U.S.C. § 103

Claims 6-9, 20-27, 29-38, 40-42, and 49-51, and 54-55 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,868,669 (the "'669 Patent") in view of U.S. Patent No. 6,050,940 ("Braun").

Claims 1, 3-5, 10-13, 15-19, 43-48, 52-53 and 56 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the '669 Patent in view of U.S. Patent No. 6,149,585 ("Gray").

Claims 2 and 14 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the '669 Patent in view of Gray and further in view of U.S. Patent No. 6,598,035 ("Branson").

Applicant notes that the Patent Office has not continued its prior rejection of Claims 28 and 39 under 35 U.S.C. §103(a) as allegedly unpatentable over the '669 Patent in view of Branson.

IV. SUMMARY OF TRAVERSES

A. Rejection under 35 U.S.C. § 101

Claims 1-17, 19-27, 29-38, 40-42 and 44-56 recite a device and steps for producing a disease diagnosis, which is a concrete and tangible result. Furthermore, the Claims are tied to a particular machine.

B. Rejection under 35 U.S.C. § 103

Claims 1 and 11 recite limitations which are not taught or suggested by the '669 Patent or Gray, either alone or in combination. All other Claims rejected under 103 depend from Claims 1 or 11. The Patent Office has therefore failed to establish a prima facie case of obviousness.

V. TRAVERSES

A. Rejection under 35 U.S.C. § 101

The Patent Office rejected Claims 1-17, 19-27, 29-38, 40-42 and 44-56 under 35 U.S.C. §101 as directed to non-statutory subject matter. Applicant respectfully traverses. Claims 1, 6, 9 and 11 are directed to statutory subject matter as the Claims are tied to a particular machine. Furthermore, Claims 1, 6, 9 and 11 produce a diagnosis of a disease, which is a useful, concrete and tangible result.

Claims 1 and 11 describe "[a] method of diagnosing a patient . . . implemented as a set of instructions executed by a computing device . . . ." A computing device is a particular machine; in this case a machine specifically configured to diagnose a patient by executing the recited elements. The recited elements define a configuration of the particular machine. The original specification fully supports all of the claims features; for example FIG. 35 shows sever embodiments of computing devices (Servers 3508, Portable PC 3526, PC 3516) and "an object based automated diagnostic system comprising a plurality of objects which interact to determine the diagnosis of a patient" where even the Patent Office has acknowledged 'objects' are considered 'software' so that 'an object based automated diagnostic system' must be considered a computing device, (p.3, ll.12-14).

Applicant believes that a "computing device . . . configured to . . . determine a diagnosis of a patient . . . [,]" is both tied to a particular machine and produces a useful tangible result. The Patent Office has provided no support for its rejection

under 101 aside from the conclusory statement that "'objects' invoking another 'object' is considered to be mere software . . . ." The Patent Office's assertion mischaracterizes Claims 6 and 9. Claims 6 and 9 both recite "a computing device" which is unquestionably a machine; such "computing device" configured by "computer code" to "determine a diagnosis of a patient" is a recitation of a "particular machine." Furthermore, "a diagnosis of a patient" is a concrete, tangible result. Applicant believes Claims 6 and 9 constitute statutory subject matter by any definition.

Claims 1 and 11 specifically recite "outputting, via the computing device, a diagnosis based at least one of the invoking or selecting . . . ." Likewise, Claims 6 and 9 specifically recite "a plurality of diagnostic objects which interact to receive input from a user and, as a result of said interaction, determine a diagnosis of a patient . . . ." A diagnosis is a concrete, tangible result.

Again, The original specification fully supports all of the claims features; for example FIG. 35 shows sever embodiments of computing devices (Servers 3508, Portable PC 3526, PC 3516) and "an object based automated diagnostic system comprising a plurality of objects which interact to determine the diagnosis of a patient" where even the Patent Office has acknowledged 'objects' are considered 'software' so that 'an object based <u>automated</u> diagnostic system' must be considered a computing device, (p.3, ll.12-14).

The specification also discloses:

> [T]he List-Based Engine (LBE) is one embodiment of the diagnostic processing method. It is a <u>program</u> that, essentially, takes a set of diseases (more precisely a collection of disease descriptions, symptom definitions, and question specifications) and processes them against one specific patient.

(Specification, p.21,ll.1-5)(emphasis added).

Furthermore, the field of the invention is defined as relating to "computerized medical diagnostic systems." (Specification, p.1,l.24). Methods employed in a "computerized medical diagnostic systems" necessitate a "computing device" to execute "a program that . . . takes a set of diseases . . . and processes them against one specific patient."

Finally, Applicant notes that the Patent Office's assertion that "'a computing device'; 'computer code, configured to execute on the computing device . . . <u>do not have support</u> from the original specification" is an improper legal standard for a § 101 rejection. While Applicant has provided ample evidence from the original specification that all of the Claimed features are in fact supported, Applicant maintains that the rejection on that basis is wholly improper.

Dependent claims 2-5, 12-19, 43-48, 52-53 and 56 are all presented for analysis based on independent claims 1, 6, 9 and 11.

B.   Rejection under 35 U.S.C. § 103

The Patent Office rejected Claims 1, 3-5, 10-13, 15-19, 43-48, 52-53 and 56 under 35 U.S.C. § 103(a) as unpatentable over the '669 Patent in view of U.S. Patent No. 6,149,585 (filed October 28, 1998) (hereinafter "Gray").

Applicant respectfully traverses. "The PTO has the burden under section 103 to establish a prima facie case of obviousness." *In re Fine*, 5 USPQ2d 1596 (Fed. Cir. 1988). "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." *In re Ryoka*, 180 USPQ 580 (C.C.P.A. 1974). See also *In re Wilson*, 165 USPQ 494 (C.C.P.A. 1970). Further, "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." (MPEP § 2143). "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR v. Teleflex*, 550 U.S. 398, 418, 127 S. Ct. 1727, 1741.

"Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious." *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

The Patent Office has failed to show how the references, either alone or in combination, teach or suggest all the claim limitations. The Patent Office has also failed to show an explicit reason, suggestion, or motivation to modify the disclosure of the '669 Patent, Gray, Braun or Branson.

i.   The references do not teach or suggest Claim 6

Claim 6 recites:

> An object based automated diagnostic system comprising:
> a computing device; and
> computer code, configured to execute on the computing device, the computer code comprising:
> a plurality of diagnostic objects which interact, as executed by the computing device, to receive input from a user and, as a result of said interaction, determine a diagnosis of a patient, wherein the objects include at least two diagnostic objects comprising:
> a disease object processing data indicative of an abnormal health state or disease, a symptom object processing data indicative of a patient sign, complaint, finding, or test result, a valuator object processing data indicative of a value of a symptom of the patient, a question object processing data indicative of questions to ask the patient specific to a specific symptom of the patient, a node object processing data indicative of a single well-defined question to the patient, and a candidates object processing data indicative of candidate diseases for diagnosis of the patient, wherein the objects are arranged in a hierarchical relationship such that the result of one of the objects is input to another of the objects; and
> at least one of the diagnostic objects directly invokes another of the diagnostic objects in a computer-based medical diagnostic system so as to output a diagnosis of a patient based on the prior object invocation,
> wherein each object has corresponding data and processes, and wherein the data is encapsulated so that other objects only see the processes of a particular object that can be invoked to access the data.

For all of the reasons set forth in Applicant's responses to previous Office Actions, the Patent Office has not shown how the references teach or suggest Claim 6. For example, Claim 6 includes the features:

- "diagnostic objects which interact . . . ;"

- "a disease object processing data indicative of an abnormal health state or disease . . . ;"

The Patent Office stated:

Iliff teaches an object based automated diagnostic system comprising, a computing device and computer code, configured to execute on the computing device, the computer code comprising [col 4, line 37-47], Iliff supports computer having input and output, algorithm processor executing the instruction in the computer; computing device corresponds to Iliff's computer comprising a plurality of diagnostic objects which interact as executed by the computing device [col 4, line 37-47] to receive input from a user and, as a result of said interaction [col 4, line 62-67, col 5, line 36-45], Iliff specifically supports both input and output device;

determine a diagnosis of a patient, (MDATA system supports object oriented language such as C++ related to patient's medical records and/objects, further Encapsulation is the process of combining data and functions into a single unit called class is integral part of C++ programming because Iliff specifically teaches MDATA system including defining various software modules as detailed in col 8, line 49-67) wherein the objects include at least two diagnostic objects comprising:

a disease object processing data indicative of an abnormal health state or disease (col 20, line 1-5, col 36, line 50-63), abnormal health state or disease corresponds to Iliff's disease object[s];

a symptom object, processing data indicative of a patient sign, complaint, finding, or test results (col 39, line 35-60), Iliff specifically teaches MDATA system processing information related to patient's diagnostic or symptom screening for example as detailed in col 39, line 35-60;

a valuator object, processing data indicative of a value of the symptom of the patient, a question object, processing data indicative of questions to ask the patient specific to a specific symptom of the patient (col 30, line 35-60, col 40, line 7-12), Iliff specifically teaches MDATA system specifically processing specific questions related to specific headaches for example "migraine screening",

a node object, processing data indicative of a single well-defined question to the patient and a candidate object processing data indicative of candidate disease for diagnosis of the patient (i.e., diagnosises and symptoms, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38- 45 in col. 21, and line 24 in col. 35 thru line 49 in col. 42, the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object),

wherein the objects are arranged in a hierarchical relationship such that the result of one of the objects is input to another of the

objects (i.e., a directed graph of a node map, line 64 in col. 14.thru line 24 in col. 15, and process of initial screening questions to migraine screening questions and to migraine confirmation questions, lines 25-44 in col. 35, lines 61-67 in col. 39, and lines 18-25 in col. 40), Iliff teaches at least one of the diagnostic objects directly invokes another of the diagnostic objects in a computer-based medical diagnostic system so as to output a diagnosis of a patient based on the prior object invocation (i.e., a directed graph of a node map in which anode directly invokes another node, line 64 in col. 14 thru line 24 in col. 15; migraine object directly invokes migraine symptom/questions objects, lines 61-67 in col. 39).

Iliff discloses the claimed subject matter as discussed above except encapsulation of data, although it is noted that encapsulation is the process of combining data and functions into a single unit called class is integral part of C++ programming because Iliff specifically teaches MDATA system including defining various software modules as detailed in col 8, line 49-67. On the other hand, Braun et al. teaches "wherein each object has corresponding data and processes, and wherein the data is encapsulated so that other objects only see the processes of a particular object that can be invoked to access the data" (Abstract, col 3, line 15-19, col 4, line 32-45, col 11, line 14-31), Braun directed to medical diagnosis system specifically real-time data collection, automated data analysis, data encoding, viewing and like i.e. supporting multiple functionalities, further allows data collection, encapsulation as detailed in col 11, line 14-31.

Therefore, based on Iliff in view of Braun, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of medical diagnosis data collection, analysis into the system of Iliff's medical diagnostic and treatment system in order to maintain the integrity of the overall data collection, encoding, and analysis (Braun: Abstract), further allows supporting "distributed collection including remote monitoring application (col 12, line 35-38), furthermore allows users of Iliff to added programmed functionality which initiates new data collection or output, monitors data streams as new data arrives, produces new views of the data and like (Braun: col 11, line 53-57)

The Patent Office appears to be characterizing "a plurality of algorithms selectively executed by the algorithm processor" ('669 Patent, col.4,ll.43-45) as "a plurality of diagnostic objects which interact, as executed by the computing device, to receive input from a user and, as a result of said interaction, determine a diagnosis of a patient . . . ." The Patent Office has not provided any support for such characterization. Specifically, the Patent Office has not shown that an "algorithm" teaches or suggest "diagnostic objects . . . ." Assuming, arguendo, that an

"algorithm" does teach or suggest "diagnostic objects[,]" the present application recites "diagnostic objects <u>which interact</u> . . . ;" the Patent Office has not shown that the '669 Patent teaches or suggest interaction between "algorithms[.]" In fact the portion of the '669 Patent cited by the Patent Office discloses "algorithms <u>selectively executed</u> by the algorithm processor[.]" (Emphasis added). The Patent Office has not shown that "selectively executed" teaches or suggests interaction.

The Patent Office also appears assume the existence of "a disease object" in the '669 Patent from the disclosure of "Headache" ('669 Patent, col.36,l.50) and information about "a disease process" ('669 Patent, col.20,ll.1-2). Assuming, arguendo, that computer code organized into objects is known in the art, and that the '669 Patent discloses a computer based diagnostic system, the Patent Office has not shown how the presumably biological "disease process" of the '669 Patent teaches or suggest a "disease object[.]" Furthermore, the example diagnosis beginning with a "Headache" in col.36,l.50 does not disclose "a disease object[.]"

In fact, in the case of "a symptom object[,]" "a valuator object[,]" and "a node object[,]" the Patent Office appears to assume the existence of each feature based on a disclosure of data that may be processed by that "object[.]" The Patent Office has not shown how the '669 Patent teaches or suggests "a disease object[,]" "a symptom object[,]" "a valuator object[,]" or "a node object[;]" the Patent Office has merely identified portions of the '669 Patent concerning examples of information that might be processed by such objects if they had been disclosed.

On that basis, the Patent Office has not established a prima facie case for anticipation as to Claim 6. Claims 7-8, 20-27, 29-30, 49-50 and 54 depend from Claim 6. Dependent Claims contain all of the limitations of the Claims from which they depend. Therefore, the Patent Office has not established that the cited references anticipate, teach or suggest Claims 7-8, 20-27, 29-30, 49-50 and 54. Furthermore, Applicant continues to assert all of the arguments previously presented. Applicant respectfully requests allowance of the Claims.

ii.   **The references do not teach or suggest Claim 9**

The present application claims:

An object based automated diagnostic system comprising:

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a computing device; and

computer code, configured to execute on the computing device, the computer code comprising:

a plurality of diagnostic objects which interact to receive input from a user and, as a result of said interaction, determine a diagnosis of a patient, wherein the diagnostic objects include at least a plurality of disease objects, each disease object processing data indicative of an abnormal health state or disease,

a plurality of symptom objects, each symptom object processing data indicative of a patient sign, complaint, finding, or test result, and a plurality of valuator objects, each valuator object processing data indicative of a value of a symptom of the patient, and

wherein at least some of the diagnostic objects perform their own tasks and directly call upon other diagnostic objects to perform their tasks at the appropriate time in a computer-based medical diagnostic system so as to output a diagnosis of a patient, and

wherein each object has corresponding data and processes, and wherein the data is encapsulated so that other objects only see the processes of a particular object that can be invoked to access the data.

For all of the reasons set forth in Applicant's responses to previous Office Actions, the Patent Office has not shown how the references teach or suggest Claim 9. For example, Claim 9 includes the features:

- "diagnostic objects which interact . . . ;"

- "a plurality of disease objects . . . ;"

The Patent Office stated:

Iliff teaches an object based automated diagnostic system comprising: a computing device; and computer code, configured to execute on the computing device, the computer code comprising: (col 4, line 37-47), Iliff supports computer having input and output, algorithm processor executing the instruction in the computer; computing device corresponds to Iliff's computer comprising:

a plurality of diagnostic objects which interact to receive input from a user and, as a result of said interaction [col 4, line 62-67, col 5, line 36-45], Iliff specifically supports both input and output device;

determine a diagnosis of a patient (col 13, line 6-10, MDATA system supports classification of "dieses" particularly creating and classifying dieses to advise the patients, further MDATA system supports object oriented language such as C++ related to patient's medical records and/objects, because Iliff specifically teaches MDATA system

including defining various software modules as detailed in col 8, line 49-67) wherein the diagnostic objects include at least a plurality of disease objects, each disease object processing data indicative of an abnormal health state or disease" (col 20, line 1-5, col 36, line 50-63), abnormal health state or disease corresponds to Iliff's disease object[s];

a plurality of symptom objects, each symptom object processing data indicative of a patient sign, complaint, finding, or test result" (col 39, line 35-60), Iliff specifically teaches MDATA system processing information related to patient's diagnostic or symptom screening for example as detailed in col 39, line 35-60; and

a plurality of valuator objects, each valuator object processing data indicative of a value of a symptom of the patient" (col 30, line 35-60, col 40, line 7-12), Iliff specifically teaches MDATA system specifically processing specific questions related to specific headaches for example "migraine screening"; and

wherein at least some of the diagnostic objects perform their own tasks and directly call upon other diagnostic objects to perform their tasks at the appropriate time in a computer-based medical diagnostic system so as to output a diagnosis of a patient (i.e., diagnosis, symptoms, and evaluation processes, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21.,lines 36-41 in col. 39, line 24 in col. 35 thru line 49 in col. 42, and lines 24-37 in col. 18; the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object; a directed graph of a node map in which a node directly invokes another node, line 64 in col. 14 thru line 24 in col. 15).

Iliff discloses the claimed subject matter as discussed above except encapsulation of data, although it is noted that encapsulation is the process of combining data and functions into a single unit called class is integral part of C++ programming because Iliff specifically teaches MDATA system including defining various software modules as detailed in col 8, line 49-67. On the other hand, Braun et al. teaches "wherein each object has corresponding data and processes, and wherein the data is encapsulated so that other objects only see the processes of a particular object that can be invoked to access the data" (Abstract, col 3, line 15-19, col 4, line 32-45, col 11, line 14-31), Braun directed to medical diagnosis system specifically real-time data collection, automated data analysis, data encoding, viewing and like i.e. supporting multiple functionalities, further allows data collection, encapsulation as detailed in col 11, line 14-31.

Therefore, based on Iliff in view of Braun, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of medical diagnosis data collection, analysis into the system of Iliff's medical diagnostic and treatment system in order to maintain the integrity of the overall data collection, encoding, and analysis (Braun: Abstract), further allows supporting

"distributed collection including remote monitoring application (col 12, line 35-38), furthermore allows users of Iliff to added programmed functionality which initiates new data collection or output, monitors data streams as new data arrives, produces new views of the data and like (Braun: col 11, line 53-57)

The Patent Office appears to be characterizing "a plurality of algorithms selectively executed by the algorithm processor" ('669 Patent, col.4,ll.43-45) as "a plurality of diagnostic objects which interact, as executed by the computing device, to receive input from a user and, as a result of said interaction, determine a diagnosis of a patient . . . ." The Patent Office has not provided any support for such characterization. Specifically, the Patent Office has not shown that an "algorithm" teaches or suggest "diagnostic objects . . . ." Assuming, arguendo, that an "algorithm" does teach or suggest "diagnostic objects[,]" the present application recites "diagnostic objects <u>which interact</u> . . . ;" the Patent Office has not shown that the '669 Patent teaches or suggest interaction between "algorithms[.]" In fact the portion of the '669 Patent cited by the Patent Office discloses "algorithms <u>selectively executed</u> by the algorithm processor[.]" (Emphasis added). The Patent Office has not shown that "selectively executed" teaches or suggests interaction.

The Patent Office also appears assume the existence of "a disease object" in the '669 Patent from the disclosure of "Headache" ('669 Patent, col.36,l.50) and information about "a disease process" ('669 Patent, col.20,ll.1-2). Assuming, arguendo, that computer code organized into objects is known in the art, and that the '669 Patent discloses a computer based diagnostic system, the Patent Office has not shown how the presumably biological "disease process" of the '669 Patent teaches or suggest a "disease object[.]" Furthermore, the example diagnosis beginning with a "Headache" in col.36,l.50 does not disclose "a disease object[.]"

In fact, in the case of "a symptom object[,]" and "a valuator object[,]"the Patent Office appears to assume the existence of each feature based on a disclosure of data that may be processed by that "object[.]" The Patent Office has not shown how the '669 Patent teaches or suggests "a disease object[,]" "a symptom object[,]" or "a valuator object[,]" the Patent Office has merely identified portions of the '669

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Patent concerning examples of information that might be processed by such objects if they had been disclosed.

On that basis, the Patent Office has not established a prima facie case for anticipation as to Claim 6. Claims 10, 31-38, 40-42, 51 and 55 depend from Claim 6. Dependent Claims contain all of the limitations of the Claims from which they depend. Therefore, the Patent Office has not established that the cited references anticipate, teach or suggest Claims 10, 31-38, 40-42, 51 and 55. Furthermore, Applicant continues to assert all of the arguments previously presented. Applicant respectfully requests allowance of the Claims.

iii. The references do not teach or suggest Claim 1

The present application claims:

A method of diagnosing a patient, implemented as a set of instructions executed by a computing device, through the reuse of medical script objects used in the automated diagnosis or management of a medical condition, the method comprising:

providing, to the computing device, a plurality of disease objects, each disease object processing data indicative of an abnormal health state or disease;

providing, to the computing device, a plurality of symptom objects, each symptom object processing data indicative of at least a patient sign, complaint, finding, or test result;

associating, via the computing device, a disease object with at least one symptom object;

assigning, via the computing device, a weight for each symptom object, wherein a particular disease object includes a preferred weight for one or more preferred symptom objects and an alternative weight for one or more related alternative symptom objects, wherein the preferred symptom objects and the alternative symptom objects for a particular preferred symptom object are selected from a set of archived symptom objects that are available for reuse;

using one of the archived symptom objects in conjunction with a plurality of disease objects;

receiving, via direct interactive dialogue between a user and the computing device, a patient symptom input;

associating the patient symptom input with at least one symptom object;

selecting, via the computing device, at least one disease object applicable to a patient based on at least one of the preferred symptom object or the alternative symptom object;

invoking, via the computing device, a preferred symptom object

or one of the related alternative symptom objects for the selected disease object so as to determine a diagnosis of a patient based on the object invocation; and

outputting, via the computing device, a diagnosis based at least one of the invoking or selecting,

wherein each object comprises an encapsulated combination of data and processes that manipulate the data. (Present application, amended Claim 1)

For all of the reasons set forth in Applicant's responses to previous Office Actions, the Patent Office has not shown how the references teach or suggest Claim 1. For example, Claim 1 includes the features:

- "a plurality of disease objects . . . processing data indicative of an abnormal health state or disease . . . ;" and

- "a plurality of symptom objects . . . ."

The Patent Office stated:

Iliff teaches" a method of diagnosing a patient, implemented as a set of instructions executed by a computing device [col 4, line 37-47], Iliff supports computer having input and output, algorithm processor executing the instruction in the computer; computing device corresponds to Iliff's computer; Iliff teaches providing, to the computing device, [col 4, line 37-47], a plurality of disease objects, processing data indicative of an abnormal health state or disease and each disease object (col 20, line 1-5, col 36, line 50-63), abnormal health state or disease corresponds to Iliff's disease object[s]; associated with a plurality of symptom objects (col 20, line 1-5, col 36, line 50-63),

Iliff teaches providing, to the computing device, a plurality of symptom objects, each symptom object processing data indicative of a patient sign, complaint, finding, or test result (col 39, line 35-60, i.e., diagnosises and symptoms, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21, and line 24 in Col. 35 thru line 49 in col. 42, the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object);

Iliff teaches "associating, via the computing device, a disease object with at least one symptom object" (col 20, line 1-5, col 36, line 50-63);

Iliff teaches assigning, via the computing device, a weight for each symptom object (i.e., weighted symptom questions, lines 24-34 in col. 60, lines 45-48 in col. 61, and lines. 28- 39 in col. 62).' Iliff teaches alternative symptoms objects for a particular preferred symptom object are selected from a set of archived symptoms objects that are available

for reuse (i.e., symptoms of headache, lines 6-29 in col. 13, fig. 6, lines 36-57 in col. 39, and lines 7-32 in col. 40).

Iliff teaches 'using one of the archived symptom objects in conjunction with a plurality of disease objects" (archived symptom objects related to symptoms of headache for example as detailed in line 6-29, in col 13, fig 6, lines 36-52 in col. 39, further Iliff also specifically supports medical history objects database is part of of MDATA system, typically history object database contains medical conditions pointer into the past medical history col 23, line 26-28, line 46-50) 'receiving, via direct interactive dialogue between a user and the computing device, a patient symptom input" (Iliff: col 5, line 36-45; Gray: fig 19-22A, col 9, line 42-55), Iliff specifically teaches user interface allows asking "questions", and "receiving answers" corresponds to interactive dialogue between users and computing device; further prior art of reference Gray also specifically supports graphical user interface allows to select required information particularly related to patient physical examination data user selecting "signs &Symptoms questions and answers;

Iliff teaches associating the patient symptom input with at least one symptom object (col 25, line 64-67, col 26, line 1-13) Iliff teaches, selecting via the computing device (fig 1, fig 3-4) at least one disease object applicable to a patient (lines 53-60 in col. 39); based on at least one of the preferred symptom object or the alternative symptom object(i.e., the MDATA system concludes that migraine is the most likely cause of the patient's headache, (i.e., symptoms of headache, lines 6-29 in col. 13, fig. 6, lines 36-57 in col. 39, and lines 7-32 in col. 40);

Iliff teaches invoking, via the computing device, (fig 1, fig 3-4), a preferred symptom object or one of the related alternative symptom objects for the, (fig 1, fig 3-4), selected disease object so as to determine a diagnosis of a patient based on the object invocation (i.e., migraine object directly invokes migraine symptom/questions objects, lines 61-67 in col. 39);

Iliff and Gray teaches "outputting, via the computing device, a diagnosis based at least one of the invoking or selecting (Iliff: fig 1,3-4col 5, line 36-38; Gray: col 1, line 57-67col 5, line 61-64), Iliff, and Gray both supports input and out devices particularly graphical user interface allows users to get return response to display the list;

"wherein each object comprises an encapsulated combination of data and processes that manipulate the data" (MDATA system supports object oriented language such as C++ related to patient's medical records and/objects, further Encapsulation is the process of combining data and functions into a single unit called class is integral part of II C++ programming because Iliff specifically teaches MDATA system including defining various software modules as detailed in col 8, line 49-67).

It is however, noted that Iliff does not explicitly disclose a preferred weight and an alternative weight. However, Gray discloses a plurality of disease associated with a plurality of symptoms in a medical

diagnostic enhancement system (lines 7-24 in col. 6 and line 23 in col. 2 thru line 41 in col. 3). Gray also discloses assigning a weight for each symptom, wherein a particular disease includes a preferred weight for one or more preferred symptoms and an alternative weight for one or more related alternative symptoms, wherein the alternative symptoms are selected from a set of symptoms (lines 25-48 in col. 6).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate diagnostic enhancement tasks particularly patient data for possible diagnoses of Gray into computerized medical diagnostic particularly user's changing condition over time of Iliff because both Iliff, Gray specifically directed to medical diagnostic system [Iliff: Abstract; Gray: Abstract], particularly in a object oriented environment [Iliff: col 8, line 46-55; Gray: col 3, line 10-16] and they both are from same field of endeavor; Because both Iliff and Gray teach medical diagnostic and treatment advice, it would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to substitute and/or modify one method for the other to achieve the predictable result of extracting specific diagnosises and symptom conditions, further able to present an accurate diagnosis to the patient to treat condition[s] [Gray: Abstract, col 4, line 31-39]

For all of the reasons set forth in Applicant's responses to the previous Office Actions, the Patent Office has not shown how the '669 Patent or Gray, either alone or in combination, teach or suggest Claim 1. Applicant continues to assert all of the arguments previously presented.

The Patent Office appears assume the existence of "a disease object" in the '669 Patent from the disclosure of "Headache" ('669 Patent, col.36,l.50) and information about "a disease process" ('669 Patent, col.20,ll.1-2). Assuming, arguendo, that computer code organized into objects is known in the art, and that the '669 Patent discloses a computer based diagnostic system, the Patent Office has not shown how the presumably biological "disease process" of the '669 Patent teaches or suggest a "disease object[.]" Furthermore, the example diagnosis beginning with a "Headache" in col.36,l.50 does not disclose "a symptom object[.]"

In fact, in the case of "a plurality of symptom objects[,]" and "archived symptom objects[,]" the Patent Office appears to assume the existence of each feature based on a disclosure of data that may be processed by that "object[.]" The Patent Office has not shown how the '669 Patent teaches or suggests "a disease object[,]" "a plurality of symptom objects[,]" or "archive symptom objects[,]" the

Patent Office has merely identified portions of the '669 Patent concerning examples of information that might be processed by such objects if they had been disclosed.

On that basis, the Patent Office has not established a prima facie case for obviousness as to Claim 1. Claims 2-5, 19, 45-48 and 53 depend from Claim 1. Dependent Claims contain all of the limitations of the Claims from which they depend. Therefore, the Patent Office has not established a prim facie case for obviousness as to Claims 2-5, 19, 45-48 and 53. Furthermore, Applicant continues to assert all of the arguments previously presented. Applicant respectfully requests allowance of the Claims.

iv. The references do not teach or suggest Claim 11

The present application claims:

A method of diagnosing a patient through the reuse of medical script objects implemented as a set of instructions executed by a computing device and used in the automated diagnosis or management of a medical condition, the method comprising:

providing a plurality of disease objects, each disease object processing data indicative of an abnormal health state or disease and each disease object associated with a plurality of symptom objects, each symptom object processing data indicative of a patient sign, complaint, finding, or test result;

receiving, via direct interactive dialogue between a user and the computing device, a patient symptom input;

associating the patient symptom input with at least one symptom object;

assigning, via the computing device, a weight for one or more symptoms, wherein a particular disease object includes a preferred weight for one or more preferred symptoms and an alternative weight for one or more alternative symptoms, wherein the alternative symptoms for a particular preferred symptom are selected from a set of archived symptom objects that are available for reuse, and wherein the particular preferred symptom has one or more related alternative symptoms that represent different approaches for eliciting further diagnostic information related to a same patient health condition;

using one of the archived symptom objects in conjunction with a plurality of disease objects;

selecting, via the computing device, from the plurality of disease objects, a disease object applicable to a patient;

invoking, via the computing device, a preferred symptom object or one of the related alternative symptom objects for the

selected disease object so as to output a diagnosis of a patient based on the object invocation; and

outputting, via the computing device, a diagnosis based at least one of the invoking or selecting. (Present application, Claim 11)

For all of the reasons set forth in Applicant's response to the previous Office Action, the Patent Office has not shown how the '669 Patent or Gray, either alone or in combination, teach or suggest Claim 11. Furthermore, Applicant has amended Claim 11 to include the additional limitation of "using one of the archived symptom objects in conjunction with a plurality of disease objects . . . ."

The Patent Office appears assume the existence of "a disease object" in the '669 Patent from the disclosure of "Headache" ('669 Patent, col.36,l.50) and information about "a disease process" ('669 Patent, col.20,ll.1-2). Assuming, arguendo, that computer code organized into objects is known in the art, and that the '669 Patent discloses a computer based diagnostic system, the Patent Office has not shown how the presumably biological "disease process" of the '669 Patent teaches or suggest a "disease object[.]" Furthermore, the example diagnosis beginning with a "Headache" in col.36,l.50 does not disclose "a symptom object[.]"

In fact, in the case of "a plurality of symptom objects[,]" and "archived symptom objects[,]" the Patent Office appears to assume the existence of each feature based on a disclosure of data that may be processed by that "object[.]" The Patent Office has not shown how the '669 Patent teaches or suggests "a disease object[,]" "a plurality of symptom objects[,]" or "archive symptom objects[,]" the Patent Office has merely identified portions of the '669 Patent concerning examples of information that might be processed by such objects if they had been disclosed.

On that basis, the Patent Office has not established a prima facie case for obviousness as to Claim 11. Claims 12-17, 44, 52 and 56 depend from Claim 11. Dependent Claims contain all of the limitations of the Claims from which they depend. Therefore, the Patent Office has not established a prim facie case for obviousness as to Claims 12-17, 44, 52 and 56. Furthermore, Applicant continues to assert all of the arguments previously presented. Applicant respectfully requests allowance of the Claims.

Furthermore, Applicant respectfully traverses all the arguments made in the office action that were not specifically addressed herein, and continues to assert all arguments presented in all prior Office Actions.

IV.   CONCLUSION

In light of the foregoing amendments and arguments, reconsideration of the claims is hereby requested, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

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/shane r thielen/
Shane R, Thielen
Reg. No. 61,121
Attorney for Applicant

SUITER·SWANTZ PC LLO
14301 FNB Parkway, Suite 220
Omaha, NE 68154
402.496.0333 (facsimile)
402.496.0300 (telephone)